

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/050544

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 E21B43/10 E21B7/20 E21B29/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/86111 A (HARDING RICHARD PATRICK ; TILTON FREDERICK THOMAS (US); HAUGEN DAVI) 15 November 2001 (2001-11-15) page 9, column 2 - page 10, column 1 figures 5,6	1,4,5,7, 12,13, 15,20-26
Y		27-31
Y	US 5 271 472 A (LETURNO RICHARD E) 21 December 1993 (1993-12-21) abstract figure 4	27,28
Y	WO 03/006788 A (SHELL CANADA LTD ; LOHBECK WILHELMUS CHRISTIANUS (NL); SHELL INT RE) 23 January 2003 (2003-01-23) claim 1 figures 3-5	29
	----- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

* & * document member of the same patent family

Date of the actual completion of the international search

26 July 2004

Date of mailing of the international search report

03/08/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Schouten, A

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/050544

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 02/38343 A (HARDING RICHARD PATRICK ;WEATHERFORD LAMB (US)) 16 May 2002 (2002-05-16) page 13, line 21 - page 14, line 3 figures 13,14	30, 31
A	US 2003/056991 A1 (HAHN DETLEF ET AL) 27 March 2003 (2003-03-27) page 3, column 1, paragraph 2 line 1-5 page 3, column 2, paragraph 1 figure 5	1, 20
A	US 2001/045284 A1 (SIMPSON NEIL A A ET AL) 29 November 2001 (2001-11-29) figures 6-8	1, 20
A	US 5 291 956 A (HINKEL ROBERT M ET AL) 8 March 1994 (1994-03-08) abstract	1, 20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2004/050544

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims 32-34 contain references to the drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/050544

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0186111	A	15-11-2001	AU 5493101 A CA 2406663 A1 EP 1278932 A1 WO 0186111 A1 NO 20024946 A US 2002185274 A1 US 2001045284 A1 US 2001040054 A1	20-11-2001 15-11-2001 29-01-2003 15-11-2001 23-12-2002 12-12-2002 29-11-2001 15-11-2001
US 5271472	A	21-12-1993	US 5197553 A	30-03-1993
WO 03006788	A	23-01-2003	BR 0211114 A CA 2453400 A1 WO 03006788 A1 GB 2395734 A	22-06-2004 23-01-2003 23-01-2003 02-06-2004
WO 0238343	A	16-05-2002	US 6598678 B1 AU 1413702 A CA 2428479 A1 EP 1333963 A2 WO 0238343 A2 NO 20032103 A US 2003106698 A1 US 2003188868 A1	29-07-2003 21-05-2002 16-05-2002 13-08-2003 16-05-2002 14-07-2003 12-06-2003 09-10-2003
US 2003056991	A1	27-03-2003	US 6419033 B1 CA 2327920 A1 GB 2357101 A , B NO 20006271 A	16-07-2002 10-06-2001 13-06-2001 11-06-2001
US 2001045284	A1	29-11-2001	US 6325148 B1 US 2002185274 A1 US 2002079100 A1 AU 772790 B2 AU 1044201 A CA 2393744 A1 EP 1242714 A1 WO 0146551 A1 NO 20022786 A US 2003106698 A1 US 2003188868 A1 US 6598678 B1 US 2002166664 A1 US 2003019638 A1 US 2003062171 A1 AU 5493101 A CA 2406663 A1 EP 1278932 A1 WO 0186111 A1 NO 20024946 A US 2001040054 A1	04-12-2001 12-12-2002 27-06-2002 06-05-2004 03-07-2001 28-06-2001 25-09-2002 28-06-2001 14-08-2002 12-06-2003 09-10-2003 29-07-2003 14-11-2002 30-01-2003 03-04-2003 20-11-2001 15-11-2001 29-01-2003 15-11-2001 23-12-2002 15-11-2001
US 5291956	A	08-03-1994	NONE	